August 15, 2006

MEMORANDUM **UTAH DEPARTMENT OF TRANSPORTATION**

TO: Jim McMinimee, P.E., Chairman

FROM: Barry Axelrod
Recorder, Standards Committee

Barry Axelrod

Digitally signed by Barry Axelrod
DN: cn=Barry Axelrod, c=US, l=Salt Lake City, st=UT, ou=http://www.usertrust.com/cps, email=baxelrod@utah.gov
Date: 2006.08.15 14:00:28 -06'00'

SUBJECT: Standards Committee Meeting Minutes and Next Meeting

The next meeting has been scheduled for Thursday, August 31, 2006 at 8:00 a.m., in the main 1st floor conference room of the Rampton Complex.

Item		**Remarks**	**Sponsor**
1.	Minutes of June 29, 2006	For approval	Barry Axelrod
2.	Supplemental Specification 02844, Concrete Barrier and Standard Drawing BA 3C, Precast Constant Slope Barrier (new)	For approval	Steve Anderson
3.	Supplemental Specification 02373, RIPRAP	For approval	Tim Biel
4.	Supplemental Specification 02741M, Hot Mix Asphalt (Removal of Department Special Provision)	For approval	Tim Biel
5.	Supplemental Specification 02765, Pavement Marking Paint (Removal of Department Special Provision)	For approval	Tim Biel
6.	Supplemental Specification 02785, Chip Seal Coat (Removal of Department Special Provision)	For approval	Tim Biel
7.	Supplemental Specification, 02969, Optional Use of Reclaimed Asphalt Pavement (Removal of Department Special Provision)	For approval	Tim Biel
8.	Schedule for 2008 Issue of New Standards	Status Update	Barry Axelrod
9.	Review of Assignment/Action Log	For review	Jim McMinimee
10.	Meeting Improvements (on-going agenda item)	For discussion	Jim McMinimee
11.	Other Business	For discussion	Jim McMinimee

JCM/ba
Attachments

cc:

Cory Pope Director, Region One	Stan Burns Engineering Services	Richard Miller Standards
Randy Park Director, Region Two	Boyd Wheeler Bridge Design	Barry Axelrod Standards
David Nazare Director, Region Three	Karl Verhaeren Construction	Patti Charles Standards
Dal Hawks Director, Region Four	Tim Biel Materials	Shana Lindsey Research
	Richard Clarke Maintenance	Tracy Conti Operations
	Robert Hull Traffic and Safety	Carlos Machado and Todd Emery FHWA
	Troy Peterson Traffic Operations Control	Mont Wilson AGC
	Rex Harris Region 1, Preconstruction	Tyler Yorgason ACEC

June 29, 2006

A regular meeting of the Standards Committee convened at 8:00 am, Thursday, June 29, 2006, in the 1st floor conference room of the Rampton Complex.

Members Present:

Jim McMinimee	Project Development	Chairman
Richard Miller	Standards and Specifications	Secretary
Barry Axelrod	Standards and Specifications	Recorder
Randy Park	Region 2	Member
Karl Verhaeren	Construction	Member
Lloyd Neeley	Maintenance (for Richard Clarke)	Member
Larry Montoya	Traffic and Safety (for Robert Hull)	Member
Tim Biel	Materials	Member
Boyd Wheeler	Bridge Design	Member
Rex Harris	Region 1, Preconstruction	Member
Carlos Machado	FHWA	Advisory Member
Mont Wilson	AGC	Advisory Member
Tyler Yorgason	ACEC	Advisory Member

Members Absent:

Stan Burns	Engineering Services	Member
Robert Hull	Traffic and Safety	Member
Richard Clarke	Maintenance	Member
Troy Peterson	TOC	Member
Todd Emery	FHWA	Advisory Member

Staff:

Barry Axelrod	Standards and Specifications
Patti Charles	Standards and Specifications
Shana Lindsey	Research
Michael Fazio	Hydraulics
Denis Stuhff	Hydraulics
Darrell Giannonatti	Construction
Terry Johnson	Environmental
Ray Cook	Bridge Design
Jim Baird	Right of Way
Keith Brown	Geotechnical/Hydraulics
Brent Jensen	Environmental
Larry Gay	Region 4

Visitors:

Travis Jaconison	Geneva Pipe
Randy Wahlen	Mountain States Concrete Pipe Association

Standards Committee Meeting

Minutes of the June 29, 2006 meeting:

1. Minutes of April 27, 2006 meeting were approved as modified.

   Jim had a question on page 12 of the minutes with respect to the rotation of the preconstruction engineer. Jim referred to the last sentence of the fourth bullet about the two region positions changing at the same time to maintain continuity. Jim asked if the intent was the positions would change at the same time or be offset. He thought the wording might be confusing. Richard said the intent was that we would not have the two representatives from the same region. With the current Preconstruction Engineer representative from Region 1, if the Region Director member was to change to Region 1 then the Preconstruction Engineer would have to be changed. Barry was asked to update minutes. Following the meeting the last sentence was changed to read "The two positions can not be from the same region. If the Preconstruction Engineer is replaced the person will be selected from the same or a different region as to not be from the same region as the Region Director member. When the Region Director position rotates to another region the Preconstruction Engineer position will also be rotated if from the same region so as not to be from the same region."

   Motion: Randy Park made a motion to accept the minutes as modified. Seconded by Tim Biel. Passed unanimously.

2. Supplemental Specification 02896M, Boundary Survey and Standard Drawing GW 6, Right of Way Marker (Agenda Item 2) - Presented by Jim Baird.

   Jim B. said the markings on the Right of Way marker were changed to be consistent with the style of marker approved a couple of years ago. He said the markings were not updated. Jim B. said he met with Darrell and Karl to review the change. Jim showed a current marker. He said the changes were to meet current state law.

   Discussion points were:

   - Jim M. asked about the accuracy of the marker location and if it is possible to get that accuracy. Jim B. said when changing in the field they want to change to the nearest hundredth, not tenth to be as accurate as possible.

   - Jim B. said the mark or dimple is needed so in the future an instrument can be set up over the survey point. He said because the specification did not call for the mark it was being left off.

   - There were no additional comments.

Motion: Boyd Wheeler made a motion to approve Supplemental Specification 02896M and Standard Drawing GW 6 as presented. Seconded by Randy Park. Passed unanimously.

Barry asked if Mike Fazio's item (agenda item 6) could be covered next so Mike could get to an appointment.

3. Supplemental Specification 01452M, Profilograph and Pavement Smoothness (Agenda Item 3) - Presented by Karl Verhaeren.

Karl said this is an update from the last meeting. He said the change was to eliminate shoulders from within a defined section. He said the incentive is based on lane-miles for the sections with shoulders wider than 8 feet included. Karl said he looked at three or four other states.

Discussion points were:

- Randy commented that the issue of measurability and what gets paid have been covered with this version. He said that has been clarified.

- Mont said the Contactors understand the criteria.

- Various incentive amounts and options were discussed. This is something that will need to be looked at prior to the publishing of the new version of the Standards.

Motion: Randy Park made a motion to approve Supplemental Specification 01452M as presented. Seconded by Tim Biel.

Jim asked about an action item from this discussion. Randy said it would be to work with industry and see what their concerns are. Lloyd asked if the action item could be separated from the motion with approval of the supplemental as written. Mont commented about removing the action item. Barry said there is no vote on action items.

Randy said he wants the discussion in the minutes and that we can not approve this without committing to look at the incentives. Tim said he will bring it up in their pavement council meeting. Jim said he was satisfied, withdrawing his request for an action item.

Motion: Jim called the question. Passed unanimously.

4. Supplemental Specification 01455, Material Quality Requirements (Agenda Item 4) - Presented by Karl Verhaeren.

Karl said the purpose is to clarify materials requirements with respect to Department acceptance procedures. Karl thanked Larry Gay (present) for helping draft the change.

Karl said certificates of compliance were also clarified as were minimum sampling and testing requirements. He said comments from ACEC were addressed.

Discussion points were:

- Referring to the environmental document comments from Tyler in the submittal sheet Jim said he wondered how we pass information from the environmental documents to the contract. What things do we have to take care of? Karl said he was not sure if he was the one to answer that question, adding that he thought commitments needed to be included in contracts. Jim asked about the mechanism to include information in the contract. Brent Jensen said it would be in the plans as well as a separate verification.

- Randy said most of the information is already included in the specifications under Limitations of Work. He said he did not want to see duplication, adding that he would rather see the information in the specifications rather than the plans.

- Jim asked how you present the information so it is best understood by the contractor. Karl said he did not think the contractor should have to have a literal understanding of what is in the environmental document. He said that information needs to be translated into the plans and specifications. Mont asked what happens when you have a job with no plans.

- There was no further discussion.

Motion: Boyd Wheeler made a motion to approve Supplemental Specification 01455 as presented. Seconded by Randy Park. Passed unanimously.

5. Supplemental Specification 01571, Environmental Controls (Agenda Item 5) – Presented by Karl Verhaeren and Terry Johnson.

Karl said he asked Stan Adams to work with Terry Johnson, Shane Marshall, and others to look at this to see if some of the requirements in Temporary Environmental Controls could be clarified. He said there is a Department Special Provision that was used when requirements for an Environmental Control Supervisor were not met. He said there were several specifications (Standards, Supplementals, and Special Provisions) that could be combined.

He said the intent was to combine Section 01561 (Temporary Environmental Fence) 01571 (Temporary Environmental Controls), and 01574 (Environmental Control Supervisor). Two sections would be eliminated with bid items falling under 01571 (new title: Environmental Controls). The Department Special Provision would also be eliminated. He said AGC, ACEC, and FHWA did not provide any comments during coordination.

Karl said confusing and conflicting information would be eliminated with this change.

Discussion points were:

- Referring to page 4, Article 1.6 on Payment Procedures Mont asked if the statement in paragraph A presupposes a bid item. Karl said that statement includes everything included in the section.

- There was no further discussion.

Motion: Tim Biel made a motion to approve Supplemental Specification 01571 as presented. Seconded by Randy Park. Passed unanimously.

6. Supplemental Specification 02610, Pipe, Pipe-Arch, Structural Plate Pipe, and Structural Pipe Arch (Agenda Item 6) – Presented by Michael Fazio.

Michael said they made changes to the section about a year and a half ago and decided to keep it as a Special Provision. He said that was done so the specification could be tested to see how it worked. Michael said they again sent the specification out for review. He said they did not get many comments. Most of those they did receive came from Karl. Most of those that were received were incorporated.

Michael said they also removed the bituminous paving of the pipes. He said in his opinion this type of paving does not last very long so it was removed from the allowable material.

Discussion points were:

- Darrell asked if Colorado's specifications were looked at. Michael said they were a while ago, adding that when originally rewriting this specification they looked at several surrounding states to get an idea what other states were doing.

- Darrell asked which of Karl's comments were not incorporated. Michael said the length. He said some redundancies were removed but he did not know the exact number of pages that were removed. All other comments were incorporated.

- Jim commented that no inputs were received from the AGC or ACEC.

- There were no additional comments.

Motion: Tim Biel made a motion to approve Supplemental Specification 02610 as presented. Seconded by Randy Park. Passed unanimously.

The meeting resumed at agenda item 3.

7. Supplemental Specification 02645, Precast Concrete Box and Three-Sided Culvert Structures (Agenda Item 7) – Presented by Ray Cook.

Ray said this update is based on industry inputs and requests to update the Standard to include the three-sided culvert. Ray said they have been working on this change over the last year and a half. He said using the three-sides culvert speeds up installation during construction, resulting in less impact to the public. When developed Ray said it was best to combine the new requirements with the current specification. He said while doing that they cleaned up other parts of the specification.

Ray said ASTM provides design criteria for the Precast Concrete Box but not the Three-sided Culvert so the design criteria were included in this change.

Discussion points were:

- Lloyd asked Ray to explain what the culvert looked like. Ray did so to include the footing. Ray said there are additional design requirements with scour or cast in place floor for protection. He said a lot of that is handled in design.

- Jim asked Randy Wahlen if he had any comments. He said they were here to answer any manufacturer questions. Boyd thanked the suppliers for their help in putting the specification together.

- Jim said he was interested in the increased testing and an inspection sheet for Construction to use. Boyd said he did not see much change in the inspection area. He said they are shifting steel inspections to the fabricators location. Boyd said he did not see an increase in inspection requirements over a cast in place option.

- Jim said he understood that part and that he was more interested in the field installation portion referring to comments someone brought up about the field inspection sheet. Boyd said that may be more related to pipe. Ray said field inspection would be similar to precast box culvert in that they are very similar.

- Patti asked if the bid items would be lump sum. Ray said yes.

Motion: Randy Park made a motion to approve Supplemental Specification 02645 as presented. Seconded by Tim Biel.

- Barry asked about the title change and the impact on other sections. He said they would check that out to see if other changes would be needed as a result. Barry said if changes are made they would be editorial.

Motion: Jim called the question. Passed unanimously.

8. Schedule for 2008 Issue of New Standards (Agenda Item 8) – Presented by Barry Axelrod.

Barry said at the last meeting they presented proposed plans to update the Standards. He said the 2008 timeframe was approved at that time. Barry said Randy Park asked that a schedule be put together to show the process and requirements. Barry said that schedule is attached to the submittal sheet. He said the schedule starts with this meeting and kickoff. Barry said they will start making the required notifications through their subscription service. He said groups will then be formed to review all the Standards with changes that need to be implemented before 2008 coming to this Committee for approval throughout the period.

Barry said they will also be reviewing the Department Special Provisions for incorporation into the Standards with the goal of reducing the total number of those Specials. He said some were already removed last meeting and two more this meeting, adding that Materials is looking at four or five more to approve as Standards. Barry said all Supplemental Specifications are used to update the new book.

Discussion points were:

- Randy Park said he was contacted by several region people about the Department Special Provisions. One concern was that there is no Standards Committee review or approval of those Special Provisions. Another is that there is no time limit before removal or approval as a Standard. Bid items are another area of concern. Designers do not feel comfortable in signing off on them for their projects. Randy said it is encouraging to see them going away.

- Randy said this brings up the question of why we even have Department Special Provisions. He asked if we can be more diligent in moving them to the Supplemental Specification phase. Randy asked if there is another way so designers are comfortable signing off on them. Randy said we are forced to put some of them in the plans, but it does not make any sense.

- Tim commented that the Materials Special Provisions go through a combination of review by the Region Materials Engineers and Pavement Council, including industry representatives.

- Randy said this may be a good topic for discussion at the Region Preconstruction Engineers' meeting to help them understand the process. Karl said that would answer a lot of questions even though it may reiterate what everyone already knows. He said the Standards Committee does not want to deal with Special Provisions but at the same time they do not want to deal with the same Supplemental Specification changes every few months.

- Karl said that is part of the reason for having the Department Special Provisions, adding that this way we find out what some of the problems are before having them as Supplemental Specifications. With the usage statements that are available for the Special Provisions Karl said he did not know why there is a problem knowing which ones to put in a project. He said there is some value in having a discussion on the process.

- Comments indicated the designers understood the process, but did not like the Department Special Provisions. Project Managers were more confused on how they fit in and when to use them.

- Barry said over the last two years different questions have come up on this subject, including from Todd Emery at FHWA. Barry said they met with Todd to explain the process. Barry said they have done the same thing during their region visits on more than one occasion.

- Barry gave a history on how some of this evolved. He said there has been a misconception that Department Special Provisions have been approved by the Standards Committee and therefore they are treated as Standards. Barry said this is not true. He said this all started out several years ago to share information with the regions so if an area had special provisions they wanted to use on projects the regions did not have to try to recreate them. When not shared, each region had different versions. Barry said that portion of the Web site was created to help with sharing information. He said the naming of the pages as Department and Region Special Provisions may not have been the best choice. The Region Special Provisions were files regions wanted put out for others to look at and use as needed. The Department Special Provisions were ones for example that Materials and Hydraulics wanted to put out to test procedures before becoming Supplemental Specifications. Some were put out to share that can not become Standards because of the nature of Special Provision.

- Barry said in January 2006 they contacted all owners of Department Special Provisions to see about getting as many as possible approved as Supplementals. A schedule was set up to do this. He said some were approved, adding that in preparation for the 2008 book they again contacted the owners. Barry said that review process was going to be yearly but they did it again as part of the 2008 process. Barry said in some cases deadlines were missed so he followed up on that status. As a result two were approved today with Materials having five more coming up in August.

- Barry said they are trying to eliminate as many as possible but the Department Special Provisions have never come through here for approval. He said we are trying to provide information to help the regions.

- Barry said based on recent comments from the regions the Table of Contents (TOC) are being changed to now include a list of all current Supplemental Specifications and Department Special Provisions in the front of the TOC. The regions would then remove the ones that are not applicable to that specific project instead of trying to figure out which ones to add. The regions thought it was better to remove unnecessary ones instead of adding required ones, lessening the chance of missing one. Barry said the listing is done in numerical order by section. If a Section has both a Supplemental Specification and Special Provision both are listed. Barry said for the Department Special Provisions they added the usage statement so regions know when each one applies. Everything they need is in one location, not on several Web pages. The regions then add their Project Special Provisions.

- Barry said they are trying to clear up the problems and clarify the procedures to include eliminating as many Department Special Provisions as possible. Richard said they need to keep communicating this during region visits.

- Randy said it is good business to keep the list of Department Special Provisions as small as we can. Richard said they would take the lead to make sure the process is communicated properly.

- Getting back to the schedule Barry said he did not plan on covering every detail.

- Jim commented on the RFP process in the schedule with it beginning on August 1, 2007. He said that gives us six months to procure a publisher and get a contract in place. He said he wondered about that date and if it were enough time. Barry said they will look at the date adding that they estimated the pages last time. For the 2005 book Barry said they only had one bid, with none within the state. Someone asked if we could sole source the book to the same publisher. Barry said they would check adding that they are satisfied with the publisher and quality of the book and that they have not received any complaints. Barry said he is not aware of any books falling apart as was the problem with other binding types. Patti added that the company was great to work with. Barry said Darby Printing kept in touch throughout the process, immediately notifying us of any delays, adding that they did not have a problem staying with the same company.

- Barry concluded the discussion of the schedule and stating if approved they would start the process. Randy said it was a great effort. Barry said the schedule would be published on their Web site so everyone can see what is happening during the process. Barry said the right column on the schedule shows the progress of the process.

- Tim suggested adding when final submittals are due for the October 2007 meeting so everyone knows the final deadline for getting changes approved before printing. Barry said those dates are already on the Standards Committee Web page but he will add it to the schedule.

- Jim said it was good to go and that no approval vote was needed.

9. Review of Assignment/Action Log (Agenda Item 9)

Barry led the discussion of the action log. He said the action log started on page 19 with a recap of the seven open items at the end of the agenda package.

- Item 1, Rumble Strips. Barry said this one has been tracked since 2002. Barry said a couple meetings back John Leonard mentioned that the policy had been approved and implemented. Nothing was ever brought to the Standards Committee on the policy so this item could not be closed. The item is still open. Jim commented that policies now go through the Technical Committee so John may have been incorrect. The policy is now available on the Innerweb. Lloyd asked if polices have to come through the Standards Committee. Barry said no unless it is a Standards Committee policy. Barry said this item initially started out as an update to the Standard Drawings and then turned into a policy. Barry said the policy became part of the action log. Jim said this particular policy led to a discussion in the Technical Committee about the Department policy on all policy approvals. Jim said they decided all policies had to come to the Technical Committee for approval before publication. Jim said that is why all Project Development polices are now going to the Technical Committee for approval. Barry said that was done with the last update to the Standards Committee policy. Barry said the question on the Rumble Strip policy is about closing the item or bringing it here for this Committee's review and approval. Jim said Tracy wants this item kept open. (Post meeting note: Parts of the Rumble Strip policy conflict with the Department approved Design Exception process.) Randy asked about the Standard Drawing and if we have one. Jim said we do not. Randy said the policy is a separate issue. Jim said the policy is part of this because it dictates what the drawing will cover. For that reason it would be appropriate for the policy to come to this Committee. Jim said to keep the item open and show the target date as the next meeting. Target date: August 2006 meeting.

- Item 2, Three-Legged/ Four-Legged Intersection. Barry said they have not seen anything on this, adding that it started as a four-legged intersection, but changed to a three-legged one. No draft or comments have been received in the Standards Section. Richard said he has a meeting coming up with John Leonard but that Standards is still going to start putting a drawing together. Randy asked if the drawing includes an IT layout or just the standard layout like we have done in the past. Barry said they have never seen a drawing so that question can not be answered. Richard said he hopes to have something by the next meeting. (Post meeting note: Because of other priorities this is delayed to October. Target date: October 2006 meeting.

- Item 3, Supplemental Specification 00555M. Barry said it is still shown as 00555M but this is a political issue. He said they are still waiting to hear where this is going. He did not have any other information. Larry Montoya said he asked John about it and was told it is on hold. Barry asked if it is on hold do we close the item. Jim said to keep it open for one more meeting. Target date: None

- Item 4, Supplemental Specification 02896. Barry said Supplemental Specification 02896 and Standard Drawing GW 6 were approved today. Closed.

- Item 5, Supplemental Specification 01452. Barry said this one was also approved today. Closed.

- Item 6, New Standard Specification Schedule. Barry said the schedule will be published and the process started. Closed.

- Review of Standard Sheets 1B and 1C, Index. Barry said this initially came to the Committee to eliminate the sheets. At the time that was not approved and the item was closed. The issue has since come up again. He said they are in the process of meeting with Construction to put something together. Barry said they should have a decision by the next meeting. The target date was shown as the August meeting so there is no change in that area.

- Barry said he did not have any other information to discuss on the action log.

- The status report as handed out at the meeting follows:

Action Item Update for June 29, 2006 Standards Committee Meeting

(As of June 12, 2006)

Item 1, Rumble Strips: Item is past due. Policy already published. No coordination by the Standards Committee. No other information received in response to request.

Item 2, New Drawing of Three-legged and Four-Legged Intersection: Item not due until June 2006 meeting. No information received in response to request.

Item 3, Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation: Due date changed at February 2006 meeting to open. No target date. No information received in response to request. Section number may change depending on upper management review.

Item 4, Supplemental Specification 02896M, Boundary Survey and Standard Drawing GW 6, Right of Way Marker. On current agenda for approval.

Item 5, Supplemental Specification 01452, Profilograph and Pavement Smoothness. On current agenda for approval.

Item 6, New Standard Specifications Schedule. On current agenda for approval.

Item 7, Review of Standard Sheets 1B and 1C, Index. Not due until August 2006 meeting.

10. Meeting Improvements (on-going agenda item) (Agenda Item 10).

- Jim said in the minutes there was a discussion by Darrell and Karl about improvements to the submittal sheet and an implementation plan on how we communicate changes to the Standards back to the users. Barry said that was added to the policy that was just approved and published yesterday following Technical Committee approval. Barry said the Web site has been updated so any submittals now have to use the new sheet. Barry referred to the latest policy, pointing out that paragraph E on the submittal sheet has been split into three parts. Barry read the information in that paragraph. He said the item includes Minimum Sampling and Testing, Business Systems, and the Implementation Plan requirements. Jim said that was a good improvement. Barry said they will watch the submittal sheets to make sure they include the required information and discuss it with the sponsor if not included. Barry said if required information is missing or not available the item could be delayed to the following meeting.

- Larry commented about the coordination process with AGC and ACEC. He asked that they provide an initial reply that the request for coordination was received. Larry said that way we know the process is moving along and if no additional comments are received after the two-week process we know we are good. Tyler said that would not be a problem. Mont asked where you send the e-mail to. Barry asked Mont if he meant where do we send the e-mail or where does AGC send it. Barry said the AGC and ACEC contact information is on the Standards Committee Web site and can be provided by the Standards Section if asked. Barry said according to the Web site the e-mail is sent to Mont and Tyler. Barry said if he gets a copy he checks to make sure the proper areas are included. Mont asked if they are sent to Rich Thorn or to him. Barry said they are sent to you (Mont). Barry said the agreement was that when Mont and Tyler get the coordination request they decide who in their respective areas should get the notice for review and comment. Barry said Mont and Tyler then review the comments and send them back to the originator. Mont said that is a good point and that you deserve some sort of answer. Barry said if nothing is heard after two weeks we assume there are no comments and the item is good. Barry said if something is not heard in a reasonable time as to whether the initial e-mail was received we could do some follow up.

11. Other Business:

Barrier Process - Tim Biel

- Tim mentioned the barrier process he had been looking at that had been before the Standards Committee in the past. He said in dealing with the design area a couple of questions came up. One dealt with usage and the other with Standard Drawings. Tim said we have drawings for all the barriers but no usage practice or standard as to which one should be the default. Tim asked if there should be some sort of application standard, meaning this is the basic practice, the cheapest one, most economical, or whatever it happens to be. He asked about who should be responsible for creating that application.

- He asked for volunteers but Jim suggested Tim make a recommendation. Tim suggested Traffic and Safety. Randy said a cost-benefit analysis is needed on decisions as to what barrier to use. Randy said it is like the white paint - black paint issue for striping.

- Jim suggested that Tim because of his work thus far on this that he be part of the group to do what he just discussed. Jim asked Boyd to volunteer to be part of the group based on his expertise as a structures engineer. Jim asked Larry to take it back to Traffic and Safety.

- Jim asked if there were any other ideas or dissent. Someone asked about where to put the guidance. One comment was the Design Manual. Jim said to let that group look into that.

- Jim commented that Steve Anderson and Glenn Schulte were working on bringing a new pre-cast constant slope barrier drawing to the Standards Committee next month and that one or both should also be included in the group. Jim said they are looking at the NCHRP approved standard that Texas is using.

- Jim thanked Tim for his work on this.

Approvals - Barry Axelrod

- Barry commented that all the items approved today were as submitted, but that he needed cleaned up copies from each person, removing the strikeout and highlighting. Barry thanked everyone for working with them in getting the agenda items coordinated and put together.

New Members - Jim McMinimee

- Jim recognized the new members: Rex Harris from Region 1 Preconstruction, Boyd Wheeler from Bridge Design, and Troy Peterson (not present) from the TOC.

Adjourned.

The next regular meeting of the Standards Committee has been scheduled for Thursday, August 31, 2006, at 8:00 a.m., in the 1st floor conference room of the Rampton Complex.

Approval of Minutes: The foregoing minutes were approved at a meeting of the Standards Committee held _____, 2006.

Assignment/Action Item Log

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002	1	Standard Drawing PV 8 (Rumble Strip)	Darrell to assign someone from Construction.	Open	August 2006 meeting
October 31, 2002			Richard Miller from Maintenance. Fred Doehring. Betty Purdie. Robert Hull to head the group.		
December 19, 2002		- Process being reviewed. Research looking into testing.	Robert Hull Stan Burns		
February 27, 2003		- A policy is to be developed over the next several months.	Robert Hull		
April 24, 2003		- No change	Stan Burns		
June 26, 2003		- No further updates. Target date changed.			
August 28, 2003		- Progress continuing. To work with Research.			
October 30, 2003		- Process continuing.			
December 18, 2003		- Still being worked.			
February 26, 2004		- No update			
April 29, 2004		- Jim to follow up with Research.			
June 24, 2004		-Research has study with University of Utah			
August 26, 2004		- Research study complete. Policy being written.			
October 21, 2004		- Waiting for BYU study results.			
February 24, 2005		- Still being reviewed. Target changed.			
April 28, 2005		- No change			
June 30, 2005		- No one present to discuss.			
August 25, 2005		- QIT working on a policy. Item being tracked as Rumble Strip Policy.	Traffic and Safety - Robert Hull		
October 27, 2005		- December meeting canceled. Target date updated.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
	1	**Item continued.** Standard Drawing PV 8 (Rumble Strip)			August 2006 meeting
February 23, 2006		- Policy approved. Drawing to be completed.	Traffic and Safety - Robert Hull		
April 27, 2006		- Policy approval discussed. Never brought to Standards for review and approval.			
June 29, 2006		- Committee still needs to review the policy			
August 28, 2003	2	A new drawing depicting the three-legged/four-legged intersection to be developed.	John Leonard	Open	October 2006 meeting
October 30, 2003		- No change in status.			
December 18, 2003		- Target date set.			
February 26, 2004		- No change.			
April 29, 2004		- Being developed			
June 24, 2004		- No report. Not due until August. E-mail sent to SAF and RES.			
August 26, 2004		- No change except target date.			
October 21, 2004		- Still under development. Target date moved.			
February 24, 2005		- No change. Work priorities prevented further review.			
April 28, 2005		- No change			
June 30, 2005		- No one present to discuss.			
August 25, 2005		- Looking at three-legged intersection first.			
October 27, 2005		- Not due. No action required.			
February 23, 2006		- Reviewed by the Traffic Engineering Panel. Drawings being developed.			
April 27, 2006		- Still on target for June 2006.			
June 29, 2006		- No new status. Standards to develop new drawing	Richard Miller		

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
August 25, 2005 October 27, 2005 February 23, 2006 April 27, 2006 June 29, 2006	3	Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation: Coordinate the required action to have the process placed in the proper location, to the detail necessary and bring the recommendation to the Standards Committee for approval. Item not ready. To be reviewed by the Operations Engineer. Target date updated. Direction being reviewed by upper management. Still being review by upper management for direction. No change other than item may be on hold.	John Leonard Tracy Conti Robert Hull	Open	Open. No date set.
April 27, 2006 June 29, 2006	4	Put team together to review the removal of Sheets 1B and 1C and make recommendation. To be review with Construction and recommendation made.	Richard Miller Barry Axelrod	Open	August 2006 meeting.
June 29, 2006	N/A	No new action items added during the June meeting	N/A	N/A	N/A

Closed Items From Last Meeting (June 29, 2006)					
Date Initiated/Updated	Prior Item #	Action	Assignments	Status	Target Date
April 27, 2006 June 29, 2006	4	Update the supplemental specification and resultant changes to Standard Drawing GW 6 in accordance with the discussion. Supplemental Specification and Standard Drawing approved.	Jim Baird	Closed	Closed
April 27, 2006 June 29, 2006	5	Supplemental Specification 01452M, Profilograph and Pavement Smoothness. Review the supplemental specification and update in accordance with the discussion on measurement and manhole issues. Supplemental Specification approved.	Karl Verhaeren	Closed	Closed
April 27, 2006 June 29, 2006	6	New Standard Specification and Standard Drawing Schedule. Put a schedule together to track dates for implementation of new Standards for 2008. Schedule reviewed and updated. Ready for publication.	Barry Axelrod	Closed	Closed

Standards Committee Agenda Items Section

Submittal Sheets, Supplemental Specification Drafts, Standard Drawing Drafts, and other supporting data for the August 31, 2006 Standards Committee meeting follows.

Standards Committee Submittal Sheet

Name of preparer: Steven K. Anderson
Title/Position of preparer: Value Engineering Manager
Specification/Drawing/Item Title: Concrete Barrier/Pre-cast Constant Slope Concrete Barrier
Specification/Drawing Number: 02844/BA 3C

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

UDOT used cast-in-place constant slope barrier in Urban Freeway applications. The regions have asked for the option of using precast constant slope concrete barrier that meets NCHRP 350 crash test requirements. The current system being used has not been crash tested. This specification and drawing will adopt a system from the Texas Department of Transportation that has been tested and approved for NCHRP 350 for sections 10 - 30 feet long and this system allows for sections to be built in any length in between.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

A new bid item created for Pre-cast Constant Slope Concrete Barrier paid for by the foot.

C. Stakeholder Notification for AGC and ACEC:
By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.
Note: There is a two-week response time set for this item.
Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)
Mont Wilson
No comment received

ACEC Comments: (Use as much space as necessary.)
Tyler Yorgason

With regard to the proposed changes in the 02844 Specification:

1. **Change "Treaded" to "Threaded" in 2.2.B**
2. **Should Cast-in-Place be added to the heading of 2.5 to read "CAST-IN-PLACE CONCRETE BARRIER"?**
3. **Re-number the second 3.2 and following paragraphs to eliminate the duplication.**
4. **Should the heading for the first 3.2 be changed to read "PRE-CAST STANDARD CONCRETE BARRIER"? If it is intended to cover both standard and constant slope barrier, eliminate 3.2.A from the second 3.2.**

I am attaching a PDF copy of a red-lined BA Standard Drawing. Also, I received the following comments from Dan Church at PB regarding the new BA Standard Drawing:

1. **Upper Connection Threaded Rod Details: Correct spelling of "Details"; Revise Dia. of A325 Rod to 7/8" to match nut.**
2. **Lower Connection Threaded Rod Details: Revise "Upper" to "Lower"; Revise Dia. of A325 Rod to 7/8" to match nut.**
3. **Connection Details: Place space between "After" and "Fabrication".**
4. **Reinforcement for Precast Constant Slope Concrete Barrier (Type 1): Clarify 30'-0"_+ 1" dimension. Should it be 30'-0" +/- 1"?**
5. **Barrier Plan At Joint: Add (Typ) to bottom orthogonal Leave-Out dimensions; "Block-Out" is the commonly used term for "Leave-Out".**
6. **Deformed Bar Anchor Details: Use 3'-7" length instead of 3'-3" to fully develop bar strength per AASHTO requirements.**
7. **Section A-A: Use 8'-10" long #5 bars at drainage slots to fully develop bar strength by splices per AASHTO requirements.**
8. **Constant Slope Concrete Traffic Barrier: Top Outside 8 5/8" dimension should be 8" (Typ).**

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Ben Huot	**Glen Shulte**	**Pete Negus**
Betty Purdie	**John Leonard**	**Randy Jefferies**
Boyd Wheeler	**Karl Verheaeren**	**Rex Harris**
Bret Sorenson	**Kevin Griffin**	**Richard Clarke**
Clark Mackay	**Merrell Jolley**	**Richard Miller**
Dave Babcock	**Mike Donivan**	**Steve Park**
Dave Schwartz	**Mike Miles**	**Tim Rose**

Karl Verhaeren
The titles of articles 2.4 and 2.6 are modified to include the word "standard". This seems a little awkward or confusing. The BA drawings refer to "standard section" barriers. This even seems odd, as they're all part of our "standards". Hindsight I suppose, but it seems like the choice of the terms used in our BA series drawings is poor.

I think the differentiation is between constant slope and "standard section" barrier. There may be a better solution for clarifying the terms, but it would probably require renaming several drawings, bid items, etc. - but I would suggest possibly adding the word "section" after the word "standard" that's been inserted in the two article titles.

In spite of what Word does, I don't think we want to hyphenate pre-cast. Refer to recent supplementals 02633 and 02645 and also to the proposed 02844 title of article 2.4. Also, study 2.6 A as an example.

We should at least be consistent and I think we've probably already established precast (no hyphen) as a term in other specifications, the UDOT Quality Management Plan, and probably elsewhere (Bid system, etc.).

2.2 B. Is this a "threaded" rod?
2.6 B. Need hyphen between "11/2 ' and "inch"
2.6 D. "Do not ship until:" instead of "Accept for shipment when:"

Randy Jefferies
Looks good. Thanks for chasing this through standards. I hope you're successful.

Lynn Bernhard
2.4 C Replace “should return” with returns

2.4 D Replace “must remain” with remains

Contractors (Any additional contacts beyond “C” above.)
Gerber Construction
Oldcastle

No comments received

Suppliers
Eagle Precast

No comments received

Consultants (as required) (Any additional contacts beyond “C” above.)
Stanley Group

No comments received

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)
Carlos Machado
Todd Emery

No comments received

Others (as appropriate)

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
   N/A
2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
   N/A
3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
   Email notification to Standards subscription group to include construction, maintenance, and design.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
   The connecting X-bolts cost approximately $100 per stick extra.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
   The lifting capabilities of Contractor's and Maintenance equipment can be the determining factor in the length of barrier used.

3. Life cycle cost.
   If the barrier is permanent, the extra time and cost for the shorter barrier segments is a one-time expense. If the barriers are to be used for temporary construction or maintenance work, the longer barriers allow more length to be placed in a day. Lengths used can be determined by existing equipment.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
It is less expensive to use longer barrier sections. They are quicker to install or remove. Different lengths can be installed and tracked for time and cost comparisons.

H. Safety Impacts?
Longer sections deflect less under impact

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.
Barrier systems are in use now with no drawing or specification to support them.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02844

CONCRETE BARRIER

Delete Section 02844 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pre-cast concrete barriers: standard, half, and terminal section.

B. Pre-cast constant slope concrete barrier.

C. Cast-in-place concrete barriers.

1.2 RELATED SECTIONS

A. Section 01554: Traffic Control

B. Section 02842: Delineators

C. Section 03055: Portland Cement Concrete

D. Section 03211: Reinforcing Steel and Welded Wire

E. Section 03390: Concrete Curing

F. Section 03392: Penetrating Concrete Sealer

1.3 REFERENCES

A. ASTM A 36: Carbon Structural Steel

B. ASTM A 325: Standard Specification for Structural Bolts

C. UDOT Quality Management Plan

PART 2 PRODUCTS

2.1 CONCRETE

A. Class AA(AE). Refer to Section 03055.

2.2 STEEL

A. Connection pins, connection loops, and stabilization pins. Refer to ASTM A 36.

B. Connection Threaded Rod. Refer to ASTM A 325-04b

2.3 REINFORCING STEEL AND WELDED WIRE FABRIC

A. As specified, refer to Section 03211.

2.4 BARRIER SEAL (FOR STANDARD SECTION PRECAST CONCRETE BARRIER)

A. Polyester polyurethane open-cell foam 100 percent impregnated with asphalt.

B. Foam unit weight requirements:
1. Before impregnation: 68 lbs/yd^3 to 85 lbs/yd^3.
2. After impregnation: 252 lbs/yd^3 to 270 lbs/yd^3.

C. Impregnated asphalt foam ~~should~~ returns to 95 percent of its original volume when compressed to 25 percent of its volume and released.

D. Impregnated asphalt foam ~~must~~ remains stable at temperatures ranging from -40 degrees F to +150 degrees F.

2.5 CONCRETE BARRIER

A. Use the specified reinforcing steel as per applicable BA Series Standard Drawings, as the reinforcing component. Refer to Section 03211.

B. Hot and cold weather limitations. Refer to Section 03055.

2.6 PRE-CAST STANDARD SECTION AND CONSTANT-SLOPE CONCRETE BARRIER ~~FOR STANDARD AND CONSTANT SLOPE~~

A. Pre-qualify the fabricator as a supplier of pre-cast concrete products in accordance with the Quality Management Plan: Precast-Prestressed Concrete Structures.

B. Mark each barrier with 1½ inch numbers indicating the date of casting and identification number supplied by the inspector. Impress ¼ inch deep into the top center of the barrier.

C. Prevent cracking or damage during handling and storage of precast units. Replace cracked or damaged precast units at no additional cost to the Department.

D. Ship ~~Accept for shipment~~ when:
   1. 28-day compressive strength acquired.
   2. Cured and sealed according to Section 03390.
   3. Visually inspected and accepted by the Engineer.

2.7 BARRIER DELINEATION

A. Sheeting: Refer to Section 02842.

B. Hardware: Refer to GW Series Standard Drawings.

2.8 CAST-IN-PLACE CONSTANT SLOPE BARRIER SURFACE SEALING MATERIAL ~~FOR CAST-IN-PLACE CONSTANT SLOPE BARRIER~~

A. Refer to Section 03392.

2.9 EXTRUSION AND SLIP FORM MACHINES FOR CAST-IN-PLACE CONSTANT SLOPE BARRIER

A. Capable of vertical adjustment to the grade line while in forward motion.

B. Equipment with an attached grade line gauge or pointer to make a continual comparison with the barrier being place and the offset guideline.

PART 3 EXECUTION

3.1 PREPARATION

A. Site considerations:
   1. Protect work area when removing traffic barriers and crash cushions until the barriers and crash cushion are reconstructed or the hazard is mitigated. Refer to Section 01554.
   2. Precast Concrete Barrier: Complete grading requirements and place any required paved surfaces as per BA Series Standard Drawings before installing barrier. Complete grading requirements prior to installation of barrier or crash cushions reference CC Series Standard Drawings.

B. For cast-in-place constant slope protection:
   1. Before applying curing compound, give the surface a final soft brush finish with strokes parallel to the line of barriers.
   2. Do not finish with a brush application of grout.
   3. Refer to Section 03392.
   4. Complete grading requirements prior to installation of crash cushions reference CC Series Standard Drawings.

3.2 PRE-CAST STANDARD SECTION CONCRETE BARRIER

A. Installation includes moving, stockpiling, and placing all barriers.

B. Place seal between each barrier unit so that enough pressure is exerted on the sealing material to form and maintain a permanent bond.

~~3.2~~3.3 PRE-CAST CONSTANT SLOPE CONCRETE BARRIER

A. Installation includes moving, stockpiling, and placing all barriers.

B. Conform to BA Series Standard Drawings.

C. Obtain approval from the Engineer before placing the material.

3.4~~3~~ CAST-IN-PLACE CONSTANT SLOPE CONCRETE BARRIER

A. Obtain approval from the Engineer before placing the material.

B. Conform to BA Series Standard Drawings.

C. Fixed forms: Do not use precast mortar blocks to support the reinforcing steel.

D. Constant slope barrier placed by extrusion or slip form:
   1. Provide an offset guideline for the extrusion or slip form machine to maintain the predetermined grade.
   2. Feed concrete to the extrusion or slip form machine at a uniform rate.
   3. Operate machine, uniformly restraining forward motion.
      a. Produce well-compacted, dense concrete with consistency that maintains the shape of the barrier without support.
      b. Produce a well-compacted mass of concrete free from surface pits larger than 1 inch in diameter and requiring no further finishing.
   4. Saw or form joints before applying curing compound.

E. Curing: Refer to Section 03390.

F. Coating:
   1. Application rate based on resident content at a coverage rate of 0.11 lbs/yd^2.
   2. Apply according to the manufacturer's recommendation for horizontal, vertical, and overhead surfaces.
   3. Select a sealer with maximum drying time of 1½ hour.

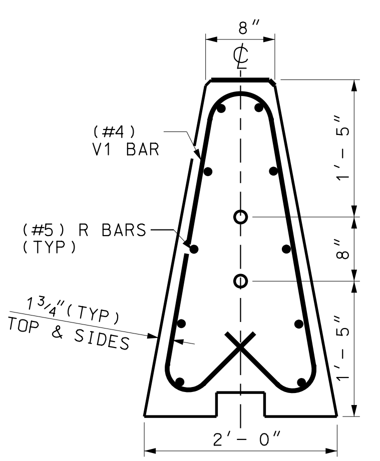
3.4 DELINEATION HARDWARE

A. Concrete Barrier: Attach L Barrier Reflector. Refer to GW Series Standard Drawings.

B. Attachment Location: Refer to BA Series Standard Drawings.

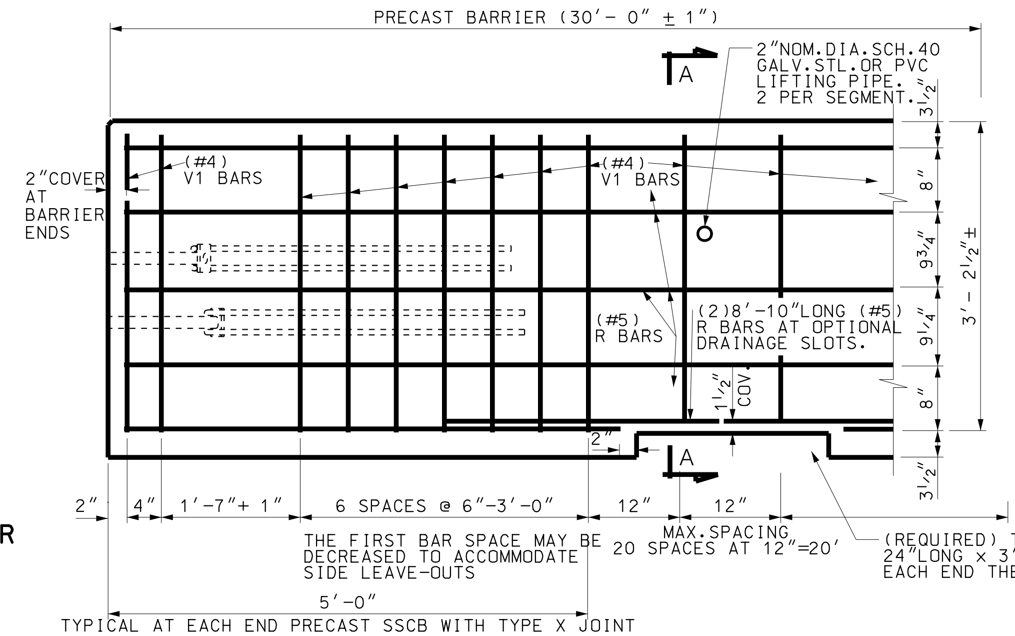
C. Application: Refer to GW Series Standard Drawings.

END OF SECTION



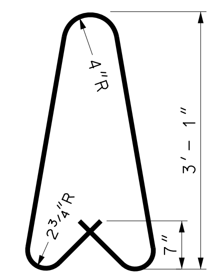
PRE-CAST BARRIER END SECTION

PIPE LOCATIONS FOR JOINT TYPE X CONNECTION



REINFORCEMENT FOR PRE-CAST CONSTANT SLOPE CONCRETE BARRIER (TYPE 1)

SHOWING REINFORCEMENT FOR JOINT CONNECTION ON (TYPE X)

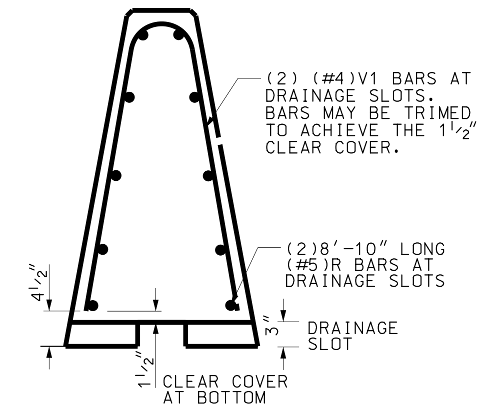


V1 BAR

#4 REBAR

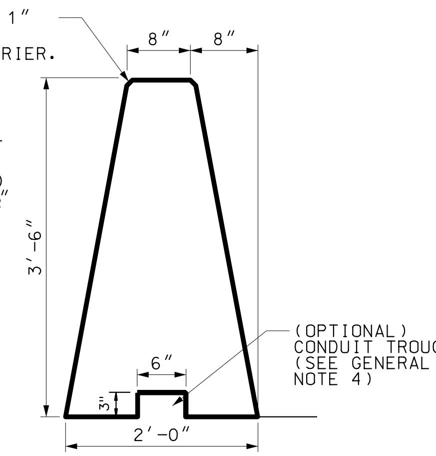
NOTE:

V1 BARS ABOVE THE DRAINAGE SLOT MAY NEED A MODIFICATION TO ACCOMMODATE 1½″ CLEAR COVER AS DIRECTED BY THE ENGINEER.



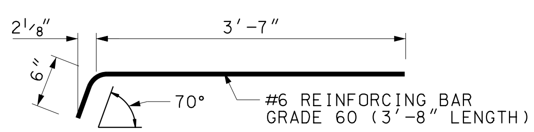
SECTION A-A

STEEL PLACEMENT AT (REQUIRED) DRAINAGE SLOT



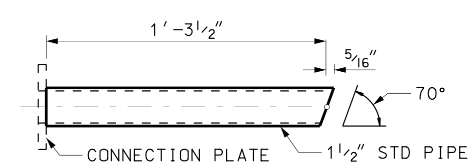
CONSTANT SLOPE CONCRETE TRAFFIC BARRIER

THE CSCB BARRIER MAY BE CAST-IN-PLACE. THE TYPE X JOINT CONNECTION MAY BE USED IN CAST-IN-PLACE BARRIER WHEN ADJACENT TO PRE-CAST CSCB TO MATCH THE JOINT CONNECTION.



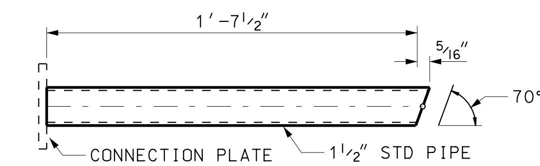
DEFORMED BAR ANCHOR DETAILS

TWO (2) BARS REQUIRED PER ASSEMBLY.
EIGHT (8) REQUIRED PER JOINT.



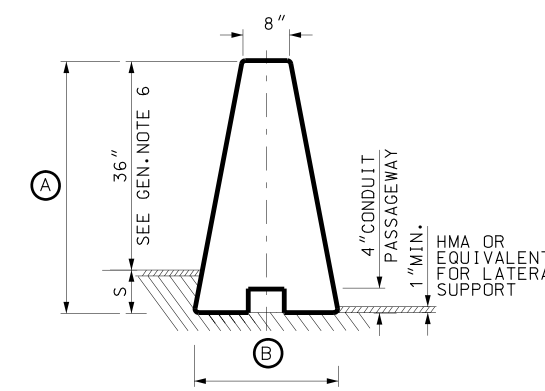
UPPER CONNECTION PIPE DETAILS

ONE (1) STEEL PIPE REQUIRED PER UPPER ASSEMBLY.
TWO (2) REQUIRED PER JOINT.

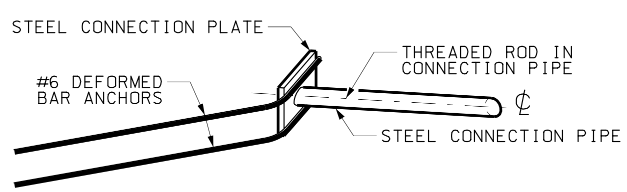


LOWER CONNECTION PIPE DETAILS

ONE (1) STEEL PIPE REQUIRED PER UPPER ASSEMBLY.
TWO (2) REQUIRED PER JOINT.

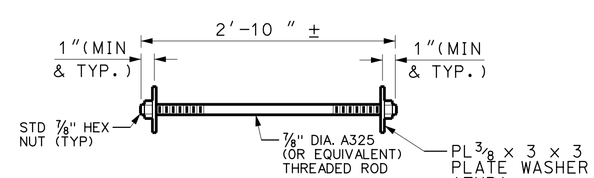


TYPICAL SECTION



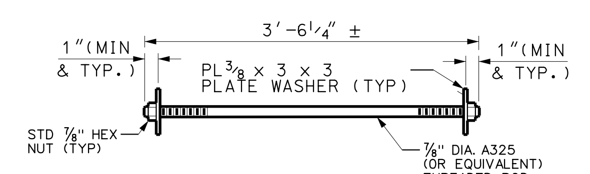
ISOMETRIC OF TYPICAL WELDED ASSEMBLY

FOUR (4) (2 UPPER & 2 LOWER) ASSEMBLIES REQUIRED PER JOINT.



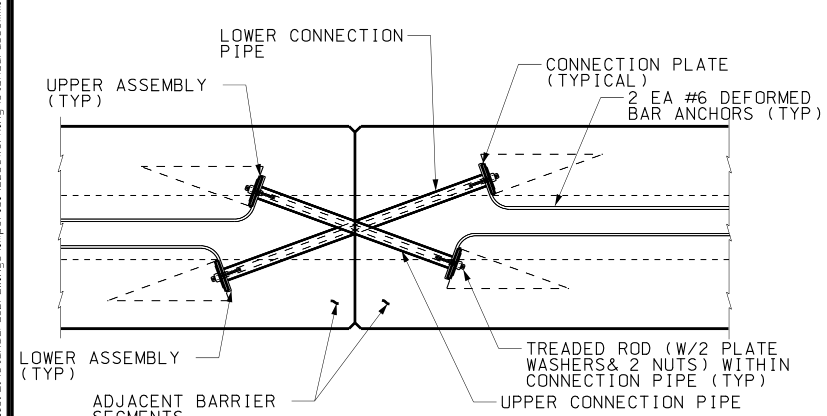
UPPER CONNECTION THREADED ROD DETAILS

ONE (1)UPPER THREADED ROD (W/TWO (2) PL⅜ x 3 x 3 PLATE WASHERS & TWO (2) STD HEX NUTS) REQUIRED PER JOINT.



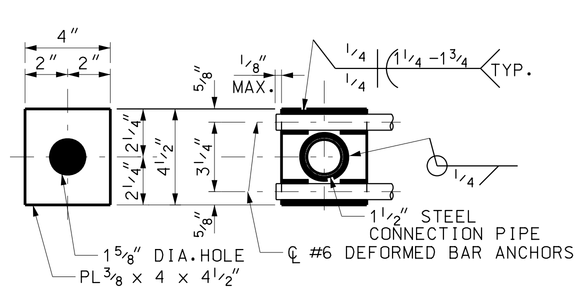
LOWER CONNECTION THREADED ROD DETAILS

ONE (1)UPPER THREADED ROD (W/TWO (2) PL⅜ x 3 x 3 PLATE WASHERS & TWO (2) STD HEX NUTS) REQUIRED PER JOINT.



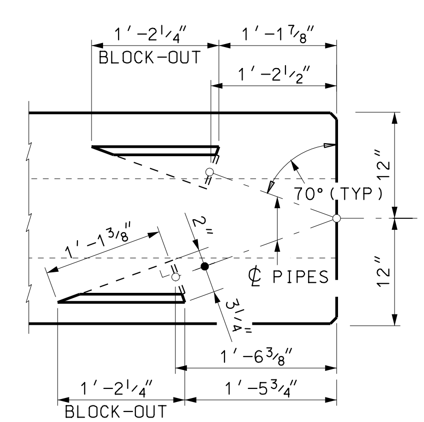
TYPE X JOINT INSTALLATION DETAIL

BARRIER REINFORCING AND TYPE X JOINT LEAVE-OUT DIMENSIONS NOT SHOWN FOR CLARITY.



CONNECTION PLATE DETAILS

ONE(1) PLATE REQUIRED PER ASSEMBLY.
FOUR (4) REQUIRED PER JOINT.
GALVANIZE ALL STEEL FITTINGS FOR JOINT TYPE AFTER FABRICATION.



BARRIER PLAN AT JOINT

GENERAL NOTES:

1. USE CLASS AA(AE) CONCRETE.
2. USE COATED REINFORCEMENT STEEL.
3. PRE-CAST BARRIER LENGTH EQUALS 30 ft. UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. CONDUIT TROUGH MAY BE OMITTED, AS SHOWN ELSEWHERE OR AS DIRECTED BY THE ENGINEER.
5. GALVANIZE ALL STEEL COMPONENTS EXCEPT REINFORCING STEEL UNLESS NOTED OTHERWISE.
6. A 36 inch MINIMUM HEIGHT DEFERENTIAL BETWEEN TOP OF THE BARRIER AND THE TOP OF THE HMA IS REQUIRED AT PLACEMENT TO ALLOW FOR UP TO 6 inches OF FUTURE OVERLAYS WHILE MAINTAINING A 30 inch MIN. FUTURE EFFECTIVE HEIGHT OF BARRIER. TOTAL MINIMAL BARRIER HEIGHT FOR DESIGN IS THEREFORE DICTATED BY ALLOWANCE FOR FUTURE OVERLAYS PLUS EXISTING STAIRSTEP DIMENSION "S".

WEIGHT OF ONE PRE-CAST 30ft. (SSCB) SEGMENT-APPROX.10.75 TONS OR 717 lbs per ft.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/31/06	SA	NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.31,2006 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.31,2006 DATE
DEPUTY DIRECTOR

(ENGLISH)
PRE-CAST CONSTANT SLOPE CONCRETE BARRIER
(TYPE X JOINT CONNECTION)
STANDARD DRAWING TITLE

STD DWG
BA 3C

DGN File: L:\Standard_Drawings\Imperial\2005Working\StandardsCommitteeFiles\August06\BA3C.dgn
15-AUG-2006

Standards Committee Submittal Sheet

Name of preparer: Tim Biel
Title/Position of preparer: Engineer for Materials
Specification/Drawing/Item Title: RIPRAP
Specification/Drawing Number: 02373

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

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3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

We are eliminating a superfluous test. The sodium sulfate soundness test is time consuming, and we have not seen failures in RIPRAP products that have passed the other requirements of LA Wear.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No Change

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

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AGC Comments: (Use as much space as necessary.)

None received after email notification.

ACEC Comments: (Use as much space as necessary.)

None received after email notification.

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

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In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers
Karl VerHearen

Contractors (Any additional contacts beyond "C" above.)

Suppliers

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No information included when submitted to Standards.

Others (as appropriate)

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
   References to AASHTO T-104 will have to be removed.

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
No Change

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
Email notification of all qualified labs and UDOT materials and construction personnel.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
Expected Savings to the Department of $200 per submittal.

H. Safety Impacts?

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02373M

RIPRAP

Delete Article 1.3, Paragraph C.

Delete Article 2.1 and replace with the following:

2.1 AGGREGATE

A. Durable, angular, hard, stone that is free from seams, cracks, or other structural defects.

B. Maximum wear less ~~not greater~~ than or equal to 40 percent when tested. AASHTO T 96.

~~C. Maximum 16 percent weighted loss. AASHTO T 104.~~

~~D~~C. Loose Riprap: Stones graded in size so as to produce a dense mass. The greatest dimension of 50~~fifty~~ percent of the stone to be at least $^{2}/_{3}$ ~~two-thirds~~ times, but not more than 1½ ~~one-and-one-half~~ times, the specified thickness of the riprap layer. Not more than 10~~ten~~ percent of the rock will have a dimension of less than $^{1}/_{10}$~~one-tenth~~ the indicated thickness of the riprap.

~~E~~D. Hand-placed riprap: Stones of not less than 3 inches in thickness, with 75~~seventy-five~~ percent of stones being at least $^{1}/_{3}$ ft^{3} ~~one-third of a cubic foot~~ in volume.

Standards Committee Submittal Sheet

Name of preparer: Tim Biel
Title/Position of preparer: Engineer for Materials
Specification/Drawing/Item Title: HOT MIX ASPHALT
Specification/Drawing Number: 02741M

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

We are replacing the Flats and Elongates test with the Flakiness Index and correcting an editorial mistake. The replacement is due to the national inability to produce a repeatable test that can be defended and the editorial change is due to carrying the Seal Coat value to the HMA instead of using a proper HMA value. This is at the industries request.

Eliminate the need for the Department Special Provision.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No Change

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

None received after email notification

ACEC Comments: (Use as much space as necessary.)

None received after email notification

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers
Karl VerHearen

Contractors (Any additional contacts beyond “C” above.)

Geneva, Staker, Granite representatives were all part of Pavement Council discussion and were requesting this change.

Suppliers

Consultants (as required) (Any additional contacts beyond “C” above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No information included when submitted to Standards.

Others (as appropriate)

Pavement Council representatives.

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
   None

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
   No Change

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
   Email notification of all qualified labs and UDOT materials and construction personnel.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
Reduction in arguments about validity of test and associated materials.

H. Safety Impacts?

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1	Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.
Priority 2	Upon posting, this impacts projects being advertised.
Priority 3	Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02741M

HOT MIX ASPHALT (HMA)

Delete Table 6 and replace with the following:

Table 6
Aggregate Properties - HMA

Test Method	Test No.	Category 1	Category 2
One Fractured Face	AASHTO TP 61	95% min.	85% min. (1 inch and 3/4 inch) 90% min. (1/2 inch and 3/8 inch)
Two Fractured Face	AASHTO TP 61	90% min.	80% min. (1 inch and 3/4 inch) 90% min. (1/2 inch and 3/8 inch)
Fine Aggregate Angularity	AASHTO T 304	45 min.	45 min.
Flakiness Index	UDOT MOI 933 (Based on 3/8 inch sieve and above)	2317% max.	2517% max.
L.A. Wear	AASHTO T 96	35% max.	40% max.
Sand Equivalent	AASHTO T 176 (Pre-wet method)	60 min.	45 min.
Plasticity Index	AASHTO T 89 and T 90	0	0
Unit Weight	AASHTO T 19	min. 75 lb/cu ft	min. 75 lb/cu ft
Soundness (sodium sulfate)	AASHTO T 104 (Loss with five Cycles)	16% max. ~~loss with five Cycles~~	16% max. ~~loss with five Cycles~~
Clay Lumps and Friable Particles	AASHTO T 112	2% max	2% max.
Natural Fines	N/A	0%	10% max.
Category 1: National Highway System and Truck Routes - Table 11. Category 2: All Other Routes			

Standards Committee Submittal Sheet

Name of preparer: Tim Biel
Title/Position of preparer: Engineer for Materials
Specification/Drawing/Item Title: PAVEMENT MARKING PAINT
Specification/Drawing Number: 02765

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Specification had been a special for several years due to changes in formulation and performance requirements. We have addressed many issues brought out by industry and construction crews as they have been brought forward. We have not had any comments or issues brought out this year regarding the requirements in the specification and believe it is appropriate for the special to be turned into a standard.

Eliminate the need for the Department Special Provision.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No Change

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

None received after email notification

ACEC Comments: (Use as much space as necessary.)

None received after email notification

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers
Karl VerHearen, All RE's with acrylic paint on projects.

Contractors (Any additional contacts beyond "C" above.)
Over the past two years comments from DunRight, Interwest, and others.

Suppliers
Over the past two years comments from Pervo, TMT, Innes

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No information included when submitted to Standards.

Others (as appropriate)

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
Already corrected with special provision

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
No Change

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
Email notification of all qualified labs and UDOT materials and construction personnel.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
None anticipated

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
Has changed life of acrylic paint from 4 months to up to two years based on application. Field maintenance people have commented that it has been a great improvement (Dan Betts)

H. Safety Impacts?

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1	Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.
Priority 2	Upon posting, this impacts projects being advertised.
Priority 3	Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02765

PAVEMENT MARKING PAINT

Delete Section 02765 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish Acrylic Water Based pavement marking paint meeting Federal Specification TTP-1952 D, with included exceptions. ~~and refer to 2.2 for resin requirement~~.

B. Apply to hot mix asphalt or Portland cement as edge lines, center lines, broken lines, guidelines, contrast lines, symbols, and other related markings.

C. Remove pavement markings.

1.2 REFERENCES

A. AASHTO M 247: Glass Beads Used in Traffic Paint

B. ASTM D 562: Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using the Stormer-Type Viscometer

C. ASTM D 2205: Selection of Tests for Traffic Paints

D. ASTM D 2743: Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography

E. ASTM D 2805: Hiding Power of Paints by Reflectometry

F. ASTM D 3723: Pigment Content of Water-Emulsion Paints

G. ASTM D 3960: Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings

H. ASTM D 4451: Pigment Content of Paints

I. ASTM D 5381: X-Ray Fluorescence (XRF) Spectroscopy of Pigments and Extenders

J. ASTM E 1347: Standard Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry

K. Federal Standards

1.3 ACCEPTANCE

A. Provide ~~fixtures (~~ball valves, gate valves, or other fixtures~~)~~ on paint truck to~~for the purposes of~~ obtain~~ing~~ field samples.

B. Agitate to thoroughly mix the paint ~~to allow for thorough mixing~~. Follow paint manufacturer's recommendation for agitation and mixing times.

C. Stop all agitation before sample is drawn.

D. Calibrate ~~A~~all meters on the paint truck ~~must be calibrated~~ annually and certify~~ied~~ for application rate ~~verification~~. Calibration tolerances for meters must be +/- 0.5 pounds per gallon. Keep a clean, legible copy of calibration report with the paint truck. Certifications performed by company personnel, meter calibration companies or UDOT Equipment Certification Unit.

E. ~~UDOT~~ Engineer~~NGINEER~~:

1. Visually inspects each line to verify bead adhesion and compliance with specified line dimensions requirements.
2. Verifies a minimum of once each production day that the paint and beads are being applied within specified tolerances ~~a minimum of once each production day~~.
3. Verifies quantities used by either of the following method~~s~~:
   a. Measuring both paint and bead tanks prior to and after application.
   b. Witnessing the meter readings prior to and after application.
4. Randomly sample each color of pavement marking paint ~~used,~~ a minimum of on~~c~~e ~~sample each~~ per project.
   a. Use a clean one-pint metal paint can.
   b. Sample paint immediately after the paint has been completely agitated. ~~(~~Stop all agitation before drawing the sample.~~)~~
   c. Apply~~Allow~~ a minimum of 10 gallons before~~to be applied prior to~~ taking sample.
   d. Fill the sample container to within ½ inch of full.
   e. Seal the containers immediately to the lid.~~by tightly attaching the container's lid.~~

f. Submit paint samples to Central Chemistry Lab for acceptance.

g. Provide the following ~~F~~for each sample ~~include~~:

- 1) Project Number
- 2) Project Name
- 3) Paint Manufacturer
- 4) Batch Number
- 5) Striping Company
- 6) Color of Paint
- 7) Estimated~~.~~ Quantity
- 8) Date Sampled
- 9) Sampler's name

F. Repaint all~~any~~ lines or symbols that fail~~ing~~ to meet bead adherence and dimensional requirements.

G. Reduce ~~P~~price ~~Reductions~~ for ~~P~~pavement ~~M~~markings installed below the specified wet mil thickness as~~are~~ outlined in Table 1~~I~~.

Table 1

~~Table I –~~ **Price Reduction for Wet Mil Thickness**	
	Pay Factor
At the specified mil thickness	1.00
1-10% ~~percent~~ below the Specified wet mil thickness	0.75
11-15% ~~percent~~ below the Specified wet mil thickness	0.50
More than15% ~~percent~~ below the Specified wet mil thickness	Repaint Pavement Markings

H. Reduce ~~P~~price ~~reductions~~ for pavement markings that fail to meet the requirements of Table 3~~III~~ are outlined in Table 2~~II~~. When more than one of the requirements of Table 3~~III~~ are deficient. The result with the highest price reduction governs.

Table 2

~~Table II –~~ **Price Reductions**	
	Pay Factor
At the specified requirements	1.00
Up to1% ~~percent~~ deficient	0.90
Up to 2% ~~percent~~ deficient	0.80
Up to 3% ~~percent~~ deficient	0.70
Up to 4% ~~percent~~ deficient	0.60
Up to 5% ~~percent~~ deficient	0.50
More than 5% ~~percent~~ below specified quantitative requirements	Repaint Pavement Markings

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Select an acrylic water based pavement marking paint manufacturer, from the Department's Accepted Products Listing (APL) ~~maintained by the UDOT Research Division~~.

2.2 PAINT

A. Follow Federal Standards 595B, 37875, 33538, and 11105. Meet the following requirements for Acrylic Water Based Paint as listed in Table 3~~III~~:

Table 3

~~Table III -~~ Paint Requirements

Property	White	Yellow (lead free)	Black	Test
Pigment: Percent by weight	62.0	62.0	62.0	ASTM D 3723
Total Solids: Percent by weight, minimum	77.0	77.0	77.0	ASTM D 2205
Nonvolatile vehicle: Percent by weight vehicle, minimum*	40.0	40.0	40.0	ASTM D 2205
Viscosity, KU @ 77 degrees F	80 – 95	80 - 95	80 - 95	ASTM D 562
Volatile Organic Content (VOC): lb~~s~~/gal, maximum	1.25	1.25	1.25	ASTM D 3960
Titanium Dioxide Content, lb~~s~~/gal	1.0 min	0.2 max	N/A	ASTM D 5381
Directional Reflectance~~-~~: Minimum	92.0	50.0	N/A	ASTM E 1347
Dry Opacity: Minimum (5 mils wet)	0.95	0.95	N/A	ASTM D 2805

* Use a~~The binder shall be~~ 100 percent acrylic binder with~~,~~ a minimum of 40 percent, by weight, as determined by infrared analysis and other chemical analysis available to the Department~~UDOT~~ (ASTM D 2205)~~. C~~consisting of either Rohm and Haas Fastrack HD-21A or Dow DT-400NA.

B. Additional requirements:

1. Free of lead, chromium, or other related heavy metals. ASTM D 5381.
2. ASTM D 2743, ASTM D 4451 and ASTM D 5381: ~~Tests used to v~~Verify paint samples using tests that meet the APL~~Accepted Products Listing~~.

2.3 GLASS SPHERE (BEADS) USED IN PAVEMENT MARKING PAINT

A. Specific Properties: Meet AASHTO M 247 with the following exceptions.

1. Refer to Table 4 for ~~G~~gradation limits:

Table 4

Gradation Limits	
Sieve Size	**Percent Passing**
No. 14	95 - 100
No. 16	80 - 95
No. 18	10 - 40
No. 20	0 - 5
No. 25	0 - 2

~~Passing a No. 14 sieve, percent 95 - 100~~
~~Passing a No. 16 sieve, percent 80 - 95~~
~~Passing a No. 18 sieve, percent 10 - 40~~
~~Passing a No. 20 sieve, percent 0 - 5~~
~~Passing a No. 25 sieve, percent 0 - 2~~

2. Beads having a Silane adhesion coating.
3. Roundness: ~~The glass beads will have a m~~Minimum of 80 percent true spheres.

B. Meet AASHTO M 247 Type II uniform gradation for ~~B~~beads used in ~~T~~temporary ~~P~~pavement ~~M~~markings ~~meet AASHTO M 247 Type II uniform gradation~~.

PART 3 EXECUTION

3.1 PREPARATION

A. Line Control.

1. Establish control points at 100 ft intervals on tangent and at 50 ft intervals on curves.
2. Maintain the line within 2 inches of the established control points and mark the roadway between control points as needed.
   a. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the Department. Refer to this Section, ~~to~~ article 3.4.

b. Maintain the line dimension within 10 percent of the width and length dimensions defined in Standard Drawings.

B. Remove dirt, loose aggregate, and other foreign material and follow manufacturer's recommendations for surface preparation.

3.2 APPLICATION

A. Apply Pavement marking paint at the following Wwet mil thickness requirements.

1. All markings 20 – 25 wet mils for all markings.

Example Calculation: (Verify wet mil thickness)

$$\text{Wet Mils} = \frac{(0.133681\ ft^3/gal)}{(X\ ft/gal)(Z\ ft)} * 12000\ mil/ft$$

Where,
X = application rate. (Meter readings or dipping tanks).
Z = line width measured in feet.
12000 = conversion from ft to mil
0.133681 = conversion from gallons to cubic feet.

For**Additional** **information only**: Approximate application rate for required mil thickness requirements.

1. 4 inch Ssolid Lline: From 190 to 240 ft/gal
2. 4 inch Bbroken Lline: From 760 to 960 ft/gal
3. 8 inch Ssolid Lline: From 95 to 120 ft/gal

B. Refer to Table 1I for pavement markings that are less than 20 wet mils in thickness.

C. No additional payment for pavement markings placed in excess of 25 wet mils in thickness or exceeding dimensional requirements as outlined in this Section, Aarticle 3.1 paragraph A.

D. Painted Legends and Symbols 1 gal/80 ft^2gallon per 80 square feet. Provide Engineer calculations of legends and symbols for pay determination.

E. Glass Sphere (Beads): Apply a minimum of 8 lbs/gal of paint, the full length and width of line and pavement markings.

1. Do not apply glass beads to contrast lines (black paint).

F. Begin striping operations no later than 24 hours after ordered by the Engineer.

G. ~~At time of application a~~Apply lines and pavement markings only when the air and pavement temperature are ~~:~~

~~1.~~ 50 degrees F and rising for Acrylic Water Based Paint.

H. ~~-~~Comply with TC series Standard~~Traffic Control~~ Drawings.

3.3 ~~CONTRACTOR~~ QUALITY CONTROL

A. Application Rate: Verify that the paint and beads are being applied within specified tolerances prior to striping.

B. Curing: Protect the markings until dry or cured. ~~In the event that the uncured~~ Reapply ~~marking is~~ damaged uncured~~the~~ marking ~~will be reapplied~~ and remove track marks left on the pavement ~~will be removed~~ at no additional cost to the Department.

3.4 REMOVE PAVEMENT MARKINGS

A. Use one of these removal methods:
   1. Grinding
   2. High pressure water spray
   3. Sand blasting
   4. Shot blasting~~.~~

B. Do not eliminate or obscure existing striping, in lieu of removal, by covering with black paint or any other covering material.

C. Use equipment specifically designed for removal of pavement marking material.

END OF SECTION

Standards Committee Submittal Sheet

Name of preparer: Tim Biel
Title/Position of preparer: Engineer for Materials
Specification/Drawing/Item Title: CHIP SEAL COAT
Specification/Drawing Number: 02785

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Specification had been a special for several years due to changes in oil and application requirements. We have addressed many issues brought out by industry and construction crews as they have been brought forward. We have not had any comments or issues brought out this year regarding the requirements in the specification and believe it is appropriate for the special to be turned into a standard.

Eliminate the need for the Department Special Provision.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No Change

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

None received after email notification

ACEC Comments: (Use as much space as necessary.)

None received after email notification

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers
Karl VerHearen, All RE's with chip seals on projects.

Contractors (Any additional contacts beyond "C" above.)
No comments from industry were received from projects.

Suppliers
No comments

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No information included when submitted to Standards.

Others (as appropriate)
Region 4 happy with inclusion of High Float materials

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
   Already corrected with special provision

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
   No Change

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
   Email notification of all qualified labs and UDOT materials and construction personnel.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
   None anticipated

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
Comments from Regions indicate it has reduced the number of occurrences of premature bleeding or chip loss, especially region 4.

H. Safety Impacts?

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1	Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.
Priority 2	Upon posting, this impacts projects being advertised.
Priority 3	Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02785

CHIP SEAL COAT

Delete Section 02785 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for applying emulsified asphalt on a cleaned surface followed with an application of cover material and bituminous flush coat.

B. Cover materials.

1.2 RELATED SECTIONS

A. Section 01554: Traffic Control

B. Section 01558: Temporary Pavement Markings

C. Section 02745: Asphalt Material

D. Section 02748: Prime Coat/Tack Coat

1.3 REFERENCES

A. AASHTO M 140: Emulsified Asphalt

B. AASHTO M 208: Cationic Emulsified Asphalt

C. AASHTO MP 1: Performance Graded Asphalt Binder

D. AASHTO T 11: Materials Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing

E. AASHTO T 19: Unit Weight and Voids in Aggregate

F. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates

G. AASHTO T 40: Sampling Bituminous Materials

H. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine

I. AASHTO T 104: Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

J. AASHTO T 278: Surface Frictional Properties Using the British Pendulum Tester

K. AASHTO T 279: Accelerated Polishing of Aggregates Using the British Wheel

L. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate

M. UDOT Materials Manual of Instruction

1.4 ACCEPTANCE

A. Emulsified Asphalt

1. Refer to UDOT Materials Manual of Instruction ~~986~~, Sampling Chip Seal Emulsions. Do not use dip-sampling devices. Use either Option 1 or 2.

a. Option 1: Provide each delivery truck ~~and/~~or trailer with a permanently installed sampling valve meeting the requirements of AASHTO T 40.

1) Waste a minimum of 1 gallon of emulsion before taking each sample.

2) Take the sample, comprised of two 1-quart plastic containers, in the presence of ~~a UDOT~~ the Engineer or his appointed representative.

b. Option 2: ~~Alternatively, f~~Furnish a detachable valve fitting, meeting the requirements of AASHTO T 40 or similar to UDOT Materials Manual of Instruction 986, figure 1.

1) Transfer approximately $^{1}/_{3}$ of the emulsion from the delivery unit into an empty tank or distributor before using the detachable valve fitting to obtain the sample.

2) Waste a minimum of 1 gallon of emulsion before taking each sample.

3) Take the sample, comprised of two 1-quart plastic containers, in the presence of ~~a UDOT~~ the Engineer or his appointed representative.

c. Accumulate and dispose all sampling waste in accordance with all applicable environmental regulations.

d. Verify that the respective viscosity test results meet the requirements of Section 02745 prior to ~~Do not~~ placinge ~~emulsified~~ asphalt ~~prior to verification the respective viscosity test results meet the requirements of Section 02745~~.

B. Cover Material

1. The Department samples and tests cover material at either the source of supply, ~~and/or the~~ the project stockpile, or both. The Engineer will:

   a. Determine lot size and number of tests in accordance with Table 1.

   b. Sample and retest for acceptance at the project stockpile at the ~~Engineer's~~ his discretion when material is sampled for acceptance at the source of supply.

   c. Determine acceptance and pay factors in accordance with Table 2.

Table 1

Lot Size	
Lot Quantity* (Tons)	**Number of Tests**
~~≥~~ > 2500	5
1500 to 2500	4
≤ 1500	3

* Individual lots may include material from one or more stockpiles.

Table 2

Cover Material Acceptance Schedule For Gradation (Percent passing)				
Sieve Size	Pay Factor*	Type A Acceptance Band**	Type B Acceptance	Type C Acceptance Band**
1/2 inch	1.00 0.95 0.90 0.85 Reject	100.0 99.0 98.0 97.0 < 97.0~~96.9~~		100.0 99.0 98.0 97.0 < 97.0~~96.9~~
3/8 inch	1.00 0.95 0.90 0.85 Reject	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 82.0~~81.9~~		70.0 - 90.0 69.5 - 91.5 69.2 - 92.0 68.0 - 92.0 < 68.0~~67.9~~ and > 92.0~~1~~
No. 4	1.00 0.95 0.90 0.85 Reject	0 - 20 20.1 - 21.0 21.1 - 22.0 22.1 - 23.0 > 23.0~~1~~	100.0 99.0 98.0 97.0 < 97.0~~96.9~~	0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0~~1~~
No. 8	1.00 0.95 0.90 0.85 Reject	0 - 5 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0~~1~~	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 82.0~~81.9~~	0.0 - 3.0 3.1 - 3.5 3.6 - 4.0 4.1 - 5.0 > 5.0~~1~~
No. 16	1.00 0.95 0.90 0.85 Reject		10.0 - 25.0 9.5 - 25.5 9.0 - 26.0 8.5 - 26.5 < 8.5~~4~~ and > 26.5~~6~~	
No. 50	1.00 0.95 0.90 0.85 Reject		0.0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0~~1~~	
No. 200	1.00 0.75 0.50 Reject	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 >2.0~~1~~	0.0 - 2.0 2.1 - 2.5 2.6 - 3.0 > 3.0~~1~~	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 > 2.0~~1~~

* Use the lowest individual pay factor for combined gradation
** Average of tests

PART 2 PRODUCTS

2.1 PERFORMANCE GRADED PG BINDER - AASHTO MP 1

A. PG58-22: Refer to ~~per~~ Section 02745.

B. PG64-22: Refer to ~~per~~ Section 02745.

2.2 ANIONIC EMULSIONS

A. RS-2: Refer to ~~per~~ AASHTO M 140.

2.3 CATIONIC EMULSIONS - AASHTO M 208

A. CRS-2A: Refer to ~~per~~ Section 02745.

B. CRS-2B: Refer to ~~pe~~r Section 02745.

C. CRS-2P: Refer to ~~per~~ Section 02745.

D. LMCRS-2: Refer to ~~per~~ Section 02745.

2.4 HIGH FLOAT EMULSIONS

A. HFRS-2P: Refer to ~~per~~ Section 02745.

B. HFMS-2: Refer to ~~per~~ AASHTO M 140.

C. HFMS-2P: Refer to ~~per~~ Section 02745.

2.5 FLUSH COAT

A. Use one of the following emulsions agreed upon by the Engineer~~,~~ (Refer to~~per~~ Section 02745)~~,~~ diluted two parts concentrate to one part water by the Manufacturer:
   1. CSS-1
   2. CSS-1h
   3. SS-1
   4. SS-1h
   5. HFMS-2P

2.6 COVER MATERIAL

A. Use crusher processed virgin aggregate consisting of natural stone, gravel, or slag meeting the requirements of Table 3.

Table 3

Chip Seal Cover Material Properties		
Unit Weight	AASHTO T 19	100 lb/ft^3, max.
One Fractured Face	ASTM D 5821	95% min.
Two Fractured Faces	ASTM D 5821	90% min.
LA wear, see Note 1	AASHTO T 96	30% max.
Soundness	AASHTO T 104	10% max.
Flakiness Index	Material MOI 8-933	17 max.
Stripping, see Note 1	Materials MOI 8-945	10% max.
Polishing, see Note 1	AASHTO T 278, T 279	31 min.
Note 1: The Department has the right to waive this requirement if the aggregates have proven acceptable through successful past performance as determined by the Engineer.		

B. Grade with the following limits to meet the specified test standard in AASHTO T 27 and T 11.

Table 4

Gradation Limits			
	Percent Passing		
Sieve Size	**Type A**	**Type B**	**Type C**
1/2 in	100		100
3/8 in	85-100		70-90
No. 4	0-20	100	0-5
No. 8	0-5	85-100	0-3
No. 16		10-25	
No. 50		0-5	
No. 200	0-1	0-2	0-1

2.7 BLOTTER MATERIAL

A. Refer to Section 02748.

2.8 TEMPORARY PAVEMENT MARKERS

A. Refer to Section 01558.

PART 3 EXECUTION

3.1 PREPARATION

A. Clean ~~the surface of~~ all dirt, sand, dust, and other ~~objectionable~~ material from the surface to the satisfaction of the Engineer.

B. Protect all structures from being spattered or marred including guardrail, guideposts, concrete barriers, and parapet walls for example~~, etc~~.

3.2 LIMITATIONS

A. Complete all work between May 15 and August 31.

B. Provide a minimum of 0.5 lb~~s~~/yd^2 blotter material meeting the requirements of Section 02748 and application equipment at the project site prior to beginning seal coat work. Application equipment is subject to inspection and approval by the Engineer.

C. Do not place any chip seal coat if the Engineer determines that excess moisture is present in the pavement structure.

D. Place seal coat when:
   1. Pavement temperature is between 70 degrees F and 136 degrees F.
   2. Air temperature is 70 degrees F and rising in the shade.

E. Complete all chip seal operations, including sweeping, during daylight hours.

F. On ~~i~~Interstate routes, do not open to traffic the same day chip seal coat is placed.
   1. Sweep and open to traffic no earlier than 14 hours after placing cover material.

G. Apply bituminous flush coat material no earlier than 14 days after the application of the cover material, or as directed by the Engineer.
   1. Apply bituminous flush coat material when the air temperature in the shade is 50 degrees F and rising.
   2. Do not apply bituminous flush coat material during fog, rain, or other adverse conditions.

3.3 COVER MATERIAL STOCKPILE

A. Construct on a clean area to minimize contamination.

B. Construct to facilitate uniform dampening. Avoid excess moisture.

3.4 TEMPORARY PAVEMENT MARKER APPLICATION

A. Refer to Section 01558.

3.5 ASPHALT MATERIAL-/COVER MATERIAL APPLICATION

A. Use a distributor equipped with a hydrostatic system capable of maintaining a tolerance of ± 0.03 gal/yd^2.
   1. Apply at a rate sufficient to obtain 50 percent chip embedment before the rolling operation.
   2. Application rates may vary throughout the project depending on existing conditions.
   3. Equipment is subject to inspection and approval by the Engineer.

B. Apply the asphalt emulsion at a minimum temperature of 145 degrees F.

C. Place building paper adjacent to the transverse construction joint prior to starting each spraying operation. Maintain the control valve to act instantaneously, both in start-up and cut-off.

D. Locate longitudinal joints within 6 inches of the traffic lane line location.
   1. Construct meet lines with no skip or voids between adjacent passes.
   2. Do not place a double thickness of cover material.

E. Spread the cover material maintaining a tolerance of ± 1.0 lb/yd^2.
   1. Equipment is subject to inspection and approval by the Engineer.

F. Calibrate the spreader at the beginning of each day and as often as required.

Table 5

Approximate Spread Rates	
Unit Weight lbs/ft^3	**Application Rate lbs/yd^2**
60.00 – 65.00	17.0
65.01 – 70.00	18.4
70.01 – 75.00	19.8
75.01 – 80.00	20.7
80.01 – 85.00	22.1
85.01 – 90.00	23.5
90.01 – 95.00	24.9
95.01 – 100.00	25.8

3.6 SURFACE ROLLING

A. Use a minimum of two pneumatic-tire rollers in a longitudinal direction to roll surface after the cover material has been spread.

B. Use a minimum of three passes to seat the cover material.
   1. A pass is defined as traveling in one direction only. Two passes is rolling forward and back.

C. Control bleeding with blotter material and as directed by the Engineer.

D. Set the roller speed to prevent bouncing or skidding.
   1. Reduce roller speeds during directional changes to prevent surface tearing ~~of the surface~~.
   2. Repair all damage done to the seal coat by the rollers.

E. Synchronize the speed of the distributor and chip spreader with that of the rolling operation.

F. Sweep excess cover material off the roadway after the emulsion has set.
   1. Remove excess cover material to the satisfaction of the Engineer before opening the roadway to traffic.

3.7 BITUMINOUS FLUSH COAT APPLICATION

A. Clean the surface of all dirt, sand, dust, lose chips, and other ~~objectionable~~ material to the satisfaction of the Engineer.

B. Apply the bituminous flush coat at a rate of 0.11 gal/yd^2.

1. Keep traffic off the flushed surface until the bituminous material has set sufficiently to prevent tracking or pick-up.

C. Provide vendor's bill of lading certifying the material was diluted in accordance with this Section, article 2.5.

3.8 TRAFFIC CONTROL

A. Refer to Section 01554.

END OF SECTION

Standards Committee Submittal Sheet

Name of preparer: Tim Biel
Title/Position of preparer: Engineer for Materials
Specification/Drawing/Item Title: OPTIONAL USE OF RECLAIMED ASPHALT
Specification/Drawing Number: 02969

Enter appropriate priority level:
(See last page for explanation) **3**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Specification had been a special for several years due to changes in oil and application requirements. We have addressed many issues brought out by industry and construction crews as they have been brought forward. This version also addresses some editorial comments regarding the HWT (has been included in 02741 and is no longer needed here) and a change in AASHTO test procedure number.

Eliminate the need for the Department Special Provision.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No Change

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

None received after email notification

ACEC Comments: (Use as much space as necessary.)

None received after email notification

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers
Karl VerHearen.

Contractors (Any additional contacts beyond "C" above.)
No comments from industry were received from projects.

Suppliers
No comments

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No information included when submitted to Standards.

Others (as appropriate)

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)
Already corrected with special provision

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)
No Change

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)
Email notification of all qualified labs and UDOT materials and construction personnel.

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
None anticipated

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)
None included with submittal.

H. Safety Impacts?

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1	Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.
Priority 2	Upon posting, this impacts projects being advertised.
Priority 3	Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Supplemental Specification
2005 Standard Specification Book

SECTION 02969

OPTIONAL USE OF RECLAIMED ASPHALT PAVEMENT

Delete Section 02969 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Option to incorporate Reclaimed Asphalt Pavement (RAP) materials into hot mix asphalt pavement, dense-graded material only.

1.2 RELATED SECTIONS

A. Section 02741: Hot Mix Asphalt (HMA)

B. Section 02745: Asphalt Materials

1.3 RERERENCES

A. AASHTO M 320: Performance Graded Asphalt Binder

B. AASHTO T 164: Quantitative Extraction of Bitumen from Paving Mixtures

C. ~~C. AASHTO T 170:~~AASHTO T 319: Quantitative Extraction and Recovery of Asphalt ~~from Solution by Absen Method~~Binder from Asphalt Mixture

D. ~~D.~~ UDOT Materials Manual of Instruction

E. ~~E.~~ UDOT Minimum Sampling and Testing Guide

1.4 SUBMITTALS

A. Quality Control Plan.
   1. Submit the proportion of materials from each of the RAP stockpiles intended to be used in the project.
   2. Submit the sampling and testing plan for the project.
   3. Provide ~~for~~ testing~~,~~ by an AMRL accredited laboratory~~,~~ of the reclaimed material and the total mixture at no additional cost to the Department.

4. Submit to the Engineer for approval.

PART 2 PRODUCTS

2.1 PG BINDER

A. Select and supply a standard AASHTO M 320 PG Binder meeting the requirements of Section~~s~~ 02745 and Section 509 of the UDOT Minimum Sampling and Testing Guide: Asphalt Binder Quality Management Plan, in accordance to Table 1.

2.2 MIX DESIGN

A. Obtain Engineer's approval for the use of RAP in the hot mix asphalt.

B. Use up to 30 percent RAP by total weight in the hot mix asphalt, in accordance to Table 1.

C. Provide the following for each RAP Stockpile:
   1. Extracted Gradation
   2. Asphalt Content
   3. Saturated - Surface Dry (SSD) Specific Gravity of Extracted RAP

D. Provide the following for the RAP Material combined in proportions for the intended production of HMA:
   1. Performance Grade of recovered asphalt binder.
      a. Use AASHTO T 164, Method E, with reagent grade Trichloroethylene~~,~~ and AASHTO T ~~170~~319 to recover the asphalt binder.
      b. Determine the performance grade of the recovered binder in accordance to AASHTO M 320 with the following modification:
         ~~(~~1) Pressure Aging Vessel (PAV) aging is not required before testing for fatigue and low temperature cracking.

E. Select the percentage of RAP by total weight in the hot mix asphalt and the standard, virgin asphalt binder grade meeting Section 02745, using Table 1:

Table 1

Binder Selection Guidelines and Total Allowable RAP for RAP Mixtures		
Recovered RAP Asphalt Binder Grade	**Desired RAP Percent**	**Recommended Virgin Asphalt Binder Grade**
PGXX-22 or lower	< 20 percent	No Change in the Design Grade of the Asphalt Binder
	~~20 - 30 percent~~	~~Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*~~
	20 to 30 percent (30 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*
PGXX-16	< 15 percent	No Change in the Design Grade of the Asphalt Binder
	~~15 - 25 percent~~	~~Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*~~
	15 - 25 percent (25 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*
PGXX-10 or higher	< 10 percent	No Change in the Design Grade of the Asphalt Binder
	~~10 - 15 percent~~	~~Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*~~
	10 - 15 percent (15 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*

* Do not select any grades lower than PG XX-34.

F. Meet all the requirements of Section 02741 ~~and the following:~~.

~~1. Average wheel impression not to exceed 10 mm in 20,000 passes when tested in accordance with Hamburg Wheel Track Testing of Compacted Bituminous Mixtures, UDOT Materials Manual of Instruction Section 990.~~

~~a. Provide to UDOT Central Laboratory sufficient mix to preform test. Allow ten days for results.~~

~~2.1. Meet all the requirements of Aggregate Properties of Section 02741 for the virgin aggregate portion of combined virgin and RAP aggregate.~~

G. Complete the mix design for the combined virgin and RAP materials following Superpave volumetric mix design procedures. Use an AMRL accredited laboratory for the design.

H. Provide the following for the combined virgin and RAP materials:
1. Gradation
2. Asphalt Binder content
3. RAP content

PART 3 EXECUTION

3.1 RECLAIMED MATERIAL

A. Crush or screen the reclaimed material to be used for recycle to pass a 1½ ~~1/2~~ inch sieve.
1. Construct stockpile platforms in such a way to prevent intrusion of subgrade materials into RAP.
2. Provide adequate drainage for the stockpile site.
3. Use separate cold feed bins for each stockpile.
4. Use screened reclaimed material free of organic materials, soil, or other foreign substances.

END OF SECTION

Standards Committee Submittal Sheet

Name of preparer: Barry Axelrod
Title/Position of preparer: Technical Writer
Specification/Drawing/Item Title: Status Update - 2008 Standards Schedule
Specification/Drawing Number:

Enter appropriate priority level:
(See last page for explanation) **N/A**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

NOTES:
1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on the Web. (http://www.udot.utah.gov/index.php/m=c/tid=303)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Status update. Kickoff to take place following the August 31, 2006 Standards Committee meeting. Still on track. We moved the Department kickoff and formation of working teams up to August - September so everyone has sufficient time to complete tasks. E-mail notifications were sent on August 9 and 10.

Use of previous book printer, Darby Printing - Still waiting to hear from Procurement.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Not applicable.

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at http://www.udot.utah.gov/index.php/m=c/tid=659 for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

E-mail notice sent on August 9 and 10, 2006. No comments expected at this time other than team formation.

ACEC Comments: (Use as much space as necessary.)

E-mail notice sent on August 9 and 10, 2006. No comments expected at this time other than team formation.

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

E-mail notice sent on August 9 and 10, 2006. No comments expected at this time other than team formation.

E. Other impacted areas, systems, or personnel. (Consider all impacts and possible changes to these areas during the preparation process. Coordinate with all appropriate areas for the respective item. List all impacts and action taken.)

1. Minimum Sampling and Testing Guide (MS&T Guide)

Not applicable as this time.

2. Business Systems (Electronic Bid System, Project Development Business System, Electronic Program Management, Computer-Aided Drafting and Design, etc.)

Not applicable as this time.

3. Implementation Plan (Provide detailed instructions on how the subject item will be implemented to include notification of all interested parties and training requirements.)

Not applicable as this time.

F. Costs? (Estimates are acceptable.)

There is a cost of holding extra meetings and preparing a new version of the Standards, but this is not a determining factor in deciding when to print a new version.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.) (If no costs, what is the benefit of making this change?)

A new starting point for Standards used in projects. Multiple months of changes are incorporated in the new version so the starting point is no changes. The regions like changes kept to a minimum. Currently with five Standards Committee meetings a year we put out five supplemental specifications issues and five drawing changes a year. Occasionally there may not be any changes for a given meeting. April 2006 was the first in this cycle with no approved changes to the drawings.

H. Safety Impacts?

None anticipated unless addressed by a specific change to a Standard.

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Proposals and schedules presented over the last two meetings. Updated schedule as needed.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

Schedule for 2008
Standard Specifications and Standard Drawings Issue

Note: Standards Committee meetings include reviewing and approving Department Special Provisions as Supplemental Specifications and other Supplemental Specifications and Standard Drawings.

Note: As items are completed they are moved to the end of the document.

Event	Date	Requirement	Progress
Standards Committee	August 31, 2006	Review and approve items as required.	
Department Kick Off	August 31, 2006 11:00 to 1:00		Need team member names by September 6.
Schedule Team Meeting	September 2006	Set up first meeting. **Areas to include:** Group 1: CNS, MAT, MNT, STR, FHWA. Group 2: ROW, ENV, TOC, RES, SAF, Design, FHWA. Group 3: AGC, ACEC, FHWA.	
Initial Team Meeting	September 2006	Date to be determined. Make assignments.	
Agenda Item Due Date for October meeting	October 5, 2006	Coordinate with sponsors.	
Standards Committee	October 26, 2006	Review and approve items as required.	
Agenda Item Due Date for December meeting	November 23, 2006	Coordinate with sponsors.	
Standards Committee	December 14, 2006	Review and approve items as required.	Meeting could be canceled. Historically December meetings not held.

Event	Date	Requirement	Progress
Special Provisions review	January 8, 2007	Email to all holders of Department Special Provisions. Semi-Annual review - convert as many as possible to Supplementals.	
Agenda Item Due Date for February meeting	February 1, 2007	Coordinate with sponsors.	
Standards Committee Meeting	February 22, 2007	Update on book process and review and approve items as required.	
Follow up Team Meetings	February - May 2007	Meet as needed.	
Agenda Item Due Date for April meeting	April 5, 2007	Coordinate with sponsors.	
Standards Committee Meeting	April 26, 2007	Update on book process and review and approve items as required. Present any specification and drawing changes that are complete.	
Final Team Meeting	June 2007	Prepare final recommendation.	
Agenda Item Due Date for June meeting	June 7, 2007	Coordinate with sponsors.	
Standards Committee Meeting	June 28, 2007	Update on book process and review and approve items as required. Present any specification and drawing changes that are complete.	
File Preparation	July 2007	Begin putting new specification book together. 1. Update all supplemental specifications to appropriate standard. 2. Review all sections for format and standardization IAW Spec Writers' Guide.	
RFP	August 1, 2007	Begin process to obtain a publisher for the spec book.	Could change depending on Procurement requirements.

Event	Date	Requirement	Progress
Agenda Item Due Date for August meeting	August 9, 2007	Coordinate with sponsors.	
Standards Committee Meeting	August 30, 2007	Update on book process and review and approve items as required. Present any specification and drawing changes that are complete.	
Final Due Date in order to be included in the 2008 Book. Agenda Item Due Date for October meeting	**October 4, 2007**	Coordinate with sponsors.	
Standards Committee Meeting	October 25, 2007	Update on book process and review and approve items as required. Present all remaining specification and drawing changes. **Changes not approved at this meeting can not go into 2008 version.**	
Hard Copy to Printer	November 14, 2007	Final electronic and hard copy complete and sent to publisher.	
Internet	December 2007	Build 2008 web site.	
Distribute Hard Copies	January 2008	Receive books from publisher and distribute accordingly.	
Internet	January 2008	Final web site update.	
Implementation	**January 2008**	**Complete the process.**	

Completed Items

Event	Date	Requirement	Progress
Standards Committee	June 29, 2006	Review and approve items as required.	Complete
Standards Committee	June 29, 2006	Action Log item to present schedule for review and approval.	Complete
Standards Committee Kick Off	June 29, 2006	Advise Standards Committee of the start of the process.	Complete
Special Provisions review	July 5, 2006	Email to all holders of Department Special Provisions. Semi-Annual review - convert as many as possible to Supplementals.	Email sent on May 10, 2006. Started early based on region request.
Review and update of General Provisions	August 8, 2006	Advise Construction Division to begin review of all General Provision Standard Specifications	Meeting scheduled with Karl V. Completed August 8, 2006. Sections 00555, 00570, 00725, 00727, & 01282 already under review. Remaining General Provisions to be reviewed and updated.

Event	Date	Requirement	Progress
Announcement	August 7 - 11, 2006	**E-Mail #1** To UDOT, FHWA, AGC, and ACEC. Notify of new Standards for 2008 and that teams will be formed for a comprehensive review of all Standard Specifications and Standard Drawings. Announce Kick Off date, time, and location. Invite all. **E-Mail #2** To all Standards Committee Members and Regions (Director, Preconstruction, Operations, and Maintenance). Advise to select appropriate people to form the review teams.	#1 Completed August 9, 2006. #2 Completed August 10, 2006 along with notices to Standards, Consultant Services, and Bid Notices subscription groups.
Agenda Item Due Date for August meeting	August 10, 2006	Coordinate with sponsors.	Complete

Action Item Update for August 31, 2006 Standards Committee Meeting
(As of August 15, 2006)

Item 1, Rumble Strips: Item is past due. Policy already published. No coordination by the Standards Committee. No other information received in response to request. This is the same information as listed for the June 2006 meeting.

Item 2, New Drawing of Three-legged and Four-Legged Intersection: Item wa past due from Traffic and Safety. No information received in response to request from Traffic and Safety. The Standards Section will be putting a drawing together for the October 2006 meeting.

Item 3, Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation: Due date changed at February 2006 meeting to open. No target date. No information received in response to request. Information from the June 2006 Standards Committee discussion indicated this item is on hold. Item to be kept open for one more meeting cycle.

Item 4, Review of Standard Sheets 1B and 1C, Index. A meeting was held to discuss the need for these sheets. Attendees: Darrell Giannonatti, Karl Verhaeren, Richard Miller, and Barry Axelrod. Decision was that the sheets are no longer needed. A listing of all Standard Drawings with approval date to be included in all Project Table of Contents files. The check marks were eliminated. All Standard Drawings apply on all projects so checking off applicable ones is not needed on projects. A hard copy book will be published for with all Standard Drawings and an effective date set. From that point all drawing changes will be treated the same as Supplemental Specification updates.

End of Agenda Package